

stomium is incorrect in representing it as much too narrow; it is more like that of the preceding species, but cuts through the first segment. The chætæ are *not* in a continuous circle, but are quite evidently arranged in couples as in *Plagiochæta*. The specimen must have been more deeply pigmented than *P. sylvestris*, for whilst that is now absolutely colourless, this is faint brown.

The following points seem to differentiate it from *P. punctata*:—(1) The dorsal gap is three times and the ventral gap twice the length of a normal gap. (2) The spermiducal glands open on distinct papillæ, and there is no such marked ridge round the ventral "area" in this region as occurs in *P. punctata* (this may possibly be due to imperfect preservation). (3) The spermatheca has *two* peculiar diverticula in place of a single cylindrical one; of these, one is an oval pouch, the other is a three-lobed pouch with a narrow neck; they both open close together into the duct of the main sac. (4) The chætæ measure 0·22 millim., and are stouter and more strongly curved internally than in *P. sylvestris*.

Both these species agree with *P. punctata* in having 13 couples of chætæ on each side, which are inserted between distinct and separated bundles of longitudinal muscles, of which there are 12 on each side; these are visible in transverse sections even between the chætal rings. The most dorsal and most ventral couples of chætæ are separated from their fellows respectively by a broader bundle, which appears to vary in size in the three species.

The nephridiopores alternate in position from segment to segment more or less regularly, and, as in *P. punctata*, the ventral pore lies between the third and fourth bundle, the dorsal pore between the ninth and tenth bundle, counting from below, as I have figured in pl. xv. fig. 17 (*loc. cit.*).

Dunedin,
Aug. 11, 1898.

XVIII.—Notes on the Family Hetrodidæ, with a List of the described Species. By W. F. KIRBY, F.L.S., F.E.S., &c.

[Concluded from p. 102.]

Notes on various Genera and Species of the Family Hetrodidæ.

Genus HETRODES, Fisch.

Walker has described four species, allied to *H. pupus*, Linn., viz. *H. marginatus*, *productus*, *macrurus*, and *abbreviatus*.

How far they are truly distinct cannot well be decided without a long series of *H. pupus* from various localities, showing its extent of variation. *H. marginatus* is a male in which the pronotum is greatly elevated and slightly indented on the hind border, and the smooth portion behind and below the hinder lateral spines is much broader than in any other specimen. The other three species (?) are females, and differ considerably in the comparative length of the ovipositor, and *H. abbreviatus* has only three rows of spines on the abdomen. I do not know Fieber's *H. variolosus*, which is too briefly described.

Genus ACANTHOPLUS, Stål.

The type of this genus is *Heterodes longipes*, Charp. *H. pallidus* and *discoidalis*, Walk., form a second section in the genus, characterized by having all the femora unarmed both above and below. *H. pallidus* differs from the other two species in having the third joint of the antennæ much longer than the second, and from *A. longipes* in having the disk of the pronotum between the spines much more coarsely punctured than the back and sides. *A. discoidalis* is from Caffraria.

Acanthoplus desertorum, sp. n.

Long. corp. 29 millim.; pron. 10; fem. post. 18; tib. post. 21.

Male.—Brownish yellow, paler on the face and under surface of the legs.

Eyes prominent, reddish. Antennæ reddish, except at the base; vertex with shallow, irregular, subconfluent punctures, inter-antennal tubercle almost obsolete; a transverse depression, slightly edged with black at the sides, above the clypeus; mandibles tipped with black; pronotum thickly and closely punctured, much more coarsely in front than on the raised portion, bordered by a yellow carina, which is indented in the middle in front, and armed with 3 long spines on each side, converging behind, and behind these is a deep sulcus before the raised part of the pronotum. On the sides the sulcus divides, passing before and behind the first of two more long lateral spines on each side, the second of which is placed above the first in front of the raised hind part of the pronotum, on the back of which are two more central spines, rather near together. Abdomen with the segments dotted with yellow towards the sutures; the sides yellowish, above which is an obsolete dusky band

on each side. On the median line is a short sharp spine pointing backwards at the extremity of each of the first five segments; on the sixth this is replaced by a carina. Front coxæ strongly spined; all the femora unarmed; all the tibiæ sulcated on the sides and (except the front tibiæ) more strongly above; front tibiæ unarmed above, but with 6 or 8 spines on each side below, the base being unarmed; middle tibiæ with 1 spine on the outer and 3 on the inner carina above, and with 6 on each side below; base unarmed; hind tibiæ with 6 to 10 spines on each side above, those in the outer row ceasing before the tip, and with from 6 to 8 on each side below.

Hab. Kalahari Desert (*Cunningham*).

Allied to *A. discoidalis*, Walk.; but in *discoidalis* the middle tibiæ are armed above with only one or two spines on the outer edge. *A. Speiseri*, Brancs., has two spines on the middle tibiæ above, but differs from both *A. discoidalis* and *A. desertorum* in having no more than three in the outer row in the hind tibiæ.

Acanthoplus serratus, sp. n.

Long. corp. (cum app.) 31 millim.; pron. 10; fem. post. 17; tib. post. 22.

Female.—Dark brown above, inclining to reddish on the pronotum, especially behind; vertex and pronotum rugose-punctate, most strongly on the front of the pronotum; inter-antennal tubercle very short, antennæ reddish beneath; face yellowish, reddish above; spines of pronotum nearly as in the last species; abdomen with the first five segments spined in the middle; under surface smooth, yellowish; anal appendages reddish; valves of the ovipositor strongly serrated above; legs varied with testaceous at the joints; front coxæ spined; femora unarmed; front tibiæ unarmed above and with two rows of about seven spines beneath, not extending to the base; middle tibiæ with 3 to 4 small spines above on the outer carina only, and with 6 on each side below, the basal third unarmed; hind tibiæ with two rows of 5 to 8 spines above and of 6 to 9 below.

Hab. King William's Town (*Spencer*).

A longer and narrower species than the last.

Acanthoplus germanus, sp. n.

Female.—Very similar to the last species in size and general appearance. The pronotum is brown, coarsely rugose-punctate in front, and more finely behind. The

abdomen is bronzed, carinated, with a strong median tooth on the second segment only, but with lateral teeth also on the second and third segments. The valves of the ovipositor are armed with fewer and larger teeth than in the last species. The face is yellow, the mandibles tipped with black, and the legs are mostly testaceous, especially beneath. The femora are unarmed, the front coxæ are spined; the front tibiæ are unarmed above and armed with two rows of 7 or 8 spines below, not extending to the base; the middle tibiæ are armed with 2 spines on the outer carina above and with 7 on each side below; and the hind tibiæ are armed with double rows of about 8 spines each both above and below.

Hab. King William's Town (*Spencer*).

Genus ENYALIOPSIS, Karsch.

This genus includes several closely-allied forms from East Africa and Angola. *E. Petersii*, Schaum, and *E. Durandi*, Luc., may perhaps be distinguished by the shape of the lateral prominence at the front angles of the pronotum, which is long and broadly bifid in *E. Petersii*, but shorter, broad and convex, with a short tooth on each side in *E. Durandi*. But it is doubtful how far this character will remain constant in a large series of specimens. I think *E. Bloyeti*, Lucas, is the same as *E. Petersii*, but am more doubtful about *E. obuncus*, Bol.

Genus ANEPISCEPTUS, Fieb.

The insect which I identify with *Hetrodes Servillei*, Reiche and Fairmaire, is common in Somaliland, and greatly resembles *Eugaster Revoilii*, Lucas, except in its smaller size. *E. Servillei*, Lucas, differs entirely in the arrangement of its spines, and I propose to rename it *Anepisceptus hippolyti*.

Eugaster suakimensis, Kirb., should be referred to *Anepisceptus*.

Genus EUGASTER, Serville.

I cannot identify the species which Dr. Karsch briefly describes as *Eugaster spinulosus* in Berl. ent. Zeitschr. xxxii. p. 463 (1888), especially as no locality is given.

Genus ACANTHOPROCTUS, Karsch.

Hetrodes fortis, Walk., is evidently synonymous with *H. cervinus*, De Haan. Of *H. militaris*, White, I have only two damaged specimens before me, but think it will prove to

be distinct when a longer series of South-African Hetrodidæ is received.

Acanthoproctus Howarthæ, sp. n.

Long. corp., ♂ 22 millim., ♀ 38 millim. (app. anal. 6 millim.).

Female.—Head testaceous; labrum, space round the frontal horn, and antennæ (except the two basal joints) chestnut-brown. Head above the antennæ rugose, below smooth and shining. Antennæ about 53-jointed, the scape enlarged, about as long as broad; second joint enlarged but less so, the rest mostly longer than broad, but differing considerably, and apparently irregularly, in their comparative lengths. Horn stout, pointed, nearly straight, about three times as long as the scape. Pronotum reddish brown above, testaceous on the sides, and with all the lateral spines testaceous; strongly rugose, with two transverse depressions behind the frontal ridge, and another at about three quarters of its length; a reddish longitudinal depressed line behind the frontal ridge, with three broad pyramidal elevations rather than spines, obtusely rounded off at the summit, on each side. Frontal ridge with two large but obtuse teeth in the middle, and with a trifid lateral horn, the outermost point the longest, slightly recurved, the second short, nearly straight, and the innermost long, projecting forwards, about as far from the second as from the central teeth, and as they stand apart. From the front of the central mass of the pronotum projects a large obtuse spine on each side, and on the hinder portion of the pronotum is a series of seven large spines at equal distances, the front pair being the largest, and the rest diminishing. Below the front pair is another tooth of equal length, with a short one at its base; there is also a conspicuous spine on the front coxæ, and a smaller one, with indications of others, on the lower lateral border of the pronotum before the front coxæ. Legs testaceous, moderately long; femora unarmed, with slight transverse ridges; all the tibiæ below with three pairs of small spines towards the extremity (including the terminal spines); hind tibiæ with an additional pair about the middle of their length; pulvilli black. Abdomen black, varied with reddish above towards the base, and with three dorsal rows of strong spines, tipped with red and pointing slightly backwards from the second to the sixth segment; on the seventh the lateral ones are replaced by warts, as is the central one on the eighth segment; on the second segment is an additional small spine, below each of the lateral ones; on segments

2 to 6 there are three small warts between the middle and lateral spines and a single one below each of the lateral spines, and the space around and between the spine and warts and the centre of the under surface of the abdomen is finely and transversely striated. Anal appendages testaceous, tipped with reddish; upper ones upcurved at the extremity, and with a large blunt subserrated pyramidal elevation nearer the base; lower appendages straight, moderately slender, pointed, about as long as the upper ones.

Male.—Similar but smaller; reddish, varied with black; pronotum irregularly banded and marked with black in the middle, behind the lateral projections, and on the sides; on the abdomen there are irregular double black bands in the middle and on each side, and there is one row of conspicuous warts between the central and lateral spines, the others being more slightly indicated in the female. Femora black above, with longitudinal rows of red spots.

Collected by Miss Anna Howarth in E. Karoo, Cape Colony, in September 1896. There is another specimen in Mr. W. L. Distant's collection from near Grahamstown.

In *A. cervinus*, Burm., and *A. militaris*, White, the spines round the hinder part of the pronotum are much smaller, more numerous, and closer together.

Genus HEMIHETRODES, Pictet.

Pictet describes his *H. Peringueyi* as having the abdomen black above, or with three black bands. The latter form will sink as a synonym of *H. vittatus*, Walk., but the name *H. Peringueyi* may be retained for the form with a black abdomen, whether it ultimately proves to be a species or a variety. Pictet's suggestion that *Hetrodes Bachmanni*, Karsch, may be a *Hemihetrodes* is inadmissible, for Karsch cannot have failed to notice whether the tibial cavities were open or rimate; and they are evidently intended to be represented as open in his figure of *H. Bachmanni*.

Genus APHRACTIA, nov.

||*Enyalis*, Stål, Öfv. Vet.-Akad. Förh. xxxiii. (3) p. 58 (1876).
Eugaster, div. a, Stål, Rec. Orth. ii. p. 22 (1874).

This genus, which has been fully characterized by Stål, may be distinguished at once from *Acanthoproctus* and *Hemihetrodes* by its spineless abdomen. The type is *Hetrodes diadematus*, Stål, of which I have no doubt that *H. crassipes*, Walk., and *Acanthoproctus ibex*, Pict., are synonyms.